

REMARKS

The following remarks are provided in response to the Final Office Action mailed August 4, 2006 in which the Examiner:

- rejected claims 13, 14 and 16-31 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.
- rejected claims 13, 14 and 16-25 under 35 U.S.C. §112, second paragraph, as being indefinite.
- rejected claims 13, 14 and 16-31 under 35 U.S.C. §102(b) as being anticipated by US 4,445,364 to Sasa (hereinafter Sasa).
- rejected claims 13, 14 and 16-31 under 35 U.S.C. §102(e) as being anticipated by US 6,979,647 to Bojkov et al. (hereinafter Bojkov).
- rejected claims 13, 14 and 16-31 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15-19 of US 6,974,764.
- provisionally rejected claims 13, 14 and 16-31 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending US Application No. 10/704,498.

The applicants respectfully request reconsideration of the above referenced patent application for the following reasons:

Claims 13, 14 and 16-31 rejection under 35 U.S.C. §112, first paragraph

Claims 13, 14 and 16-31 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner states that the

“claims have been amended to recite that the metallic film contains 2 or more metals.

This limitation is not taught by the specification as originally filed. The specification does not provide the teaching or examples for the lower limit of the range, i.e. ‘2’.”

The specification includes metal alloys as an example of a type of metal film that may be etched in an embodiment of the invention (see paragraphs [0023], [0027] and [0030] – [0032]). The applicants respectfully point out that a metal alloy is comprised of 2 or more metals, as is well known in the art. Furthermore, the specification states, “[m]ultiple tailored chelating agents, each tailored to a specific metal may be sued [sic] in conjunction to target a specific alloy. For such an embodiment, the chelating agents may be used in proportion to the proportion of the respective metals of the alloy.” (paragraph [0031]; also, please see amended paragraph [0031] above, which corrects the typo). Thus, the applicants enable an embodiment in which a metal film comprised of 2 or more metals (i.e. a metal alloy) is used in conjunction with multiple (i.e. 2 or more) tailored chelating agents, as claimed herein.

Therefore, claims 13, 14 and 16-31 comply with the written description requirement.

Claims 13, 14 and 16-25 rejection under 35 U.S.C. §112, second paragraph

Claims 13, 14 and 16-25 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner states that “[c]laim 13 is not clear in reciting ‘a second metallic film’ which is not impaired by the removal of portions of the first metallic film. The language does not provide a relationship between the two films as in the other claims

which make it clear that the second film is under the first film.”

The applicants herein amend independent claims 13 and 18 to provide a relationship between the two metal films and respectfully request reconsideration of claims 13, 14 and 16-25 in view of the amendments.

Claim 13, 14 and 16-31 rejection under 35 U.S.C. §102(b)

Claims 13, 14 and 16-31 are rejected under 35 U.S.C. §102(b) as being anticipated by Sasa. The applicants herein amend independent claims 13 and 18 (on which claims 14, 16-17 and 19-25 depend) and respectfully request reconsideration of claims 13, 14 and 16-31 in view of the amendments and the following arguments.

In claims 13, 14 and 16-31 the applicants teach and claim a method comprising depositing a first metallic film on a substrate, wherein the first metallic film contains two or more specific metals. A second metallic film is also deposited on the substrate. A layer of photoresist is deposited on the first metallic film and patterned such that a desired portion of the first metallic film is masked and an undesired portion of the first metallic film is exposed. Two or more chelating agents are then used to remove the undesired portion of the first metallic film, wherein the two or more chelating agents do not impair the second metallic film. In claims 13, 14, 16-17, 22 and 23, the method further comprises selecting the two or more chelating agents based upon the two or more specific metals contained in the first metallic film. In claims 18-21, 24 and 25, the method further comprises selecting a media in which to employ the two or more chelating agents based upon the two or more specific metals contained in the first metallic film.

That is, the applicants teach a method of **removing a portion of a metallic film containing two or more specific metals by using two or more chelating agents.**

Sasa fails to disclose a method of removing a portion of a metallic film with two or more chelating agents, wherein the metallic film contains two or more specific metals. As pointed out by the Examiner, in example 3, Sasa does disclose removing an AlFe alloy. However, only one chelating agent (sodium 4-nitro-2-aminophenolate) was used to remove the AlFe alloy in Sasa (col. 15, lines 24-57), and thus Sasa would not have been motivated to target each of the two or more specific metals in a metal alloy with two or more respective specific chelating agents, as taught by the applicants. Therefore, **Sasa discloses using 1 chelating agent** to remove a metallic film containing more than one metal, whereas **the applicants teach using 2 or more chelating agents** to remove a metallic film containing more than one metal.

Claim 13, 14 and 16-31 rejection under 35 U.S.C. §102(e)

Claims 13, 14 and 16-31 are rejected under 35 U.S.C. §102(e) as being anticipated by Bojkov. The applicants herein amend independent claims 13 and 18 (on which claims 14, 16-17 and 19-25 depend) and respectfully request reconsideration of claims 13, 14 and 16-31 in view of the amendments and the following arguments.

As discussed above, the applicants teach a method of **removing a portion of a metallic film containing two or more specific metals by using two or more chelating agents.** Bojkov fails to disclose a method of removing a portion of a metallic film with two or more chelating agents, wherein the metallic film contains two or more specific

metals. As pointed out by the Examiner, Bojkov does disclose an Al/Cu alloy (col. 3, lines 26-28). Additionally, Bojkov lists a variety of preferable chelating agents “[f]or the metals of copper, titanium and tungsten, which are preferably used in the seed layer **104**.¹” (col. 5, line 54 – col. 6, line 37). However, Bojkov does not suggest combining 2 or more different chelating agents to remove a metallic film, and thus **Bojkov would not have been motivated to target each of the two or more specific metals in a metal alloy with two or more respective specific chelating agents**, as taught by the applicants.

Claims 13, 14 and 16-31 rejection for nonstatutory obviousness-type double patenting

Claims 13, 14 and 16-31 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15-19 of US 6,974,764. The applicants herein amend independent claims 13 and 18 (on which claims 14, 16-17 and 19-25 depend) and respectfully request reconsideration of claims 13, 14 and 16-31 in view of the amendments and the following arguments.

As discussed above, the applicants teach a method of **removing a portion of a first metallic film by using chelating agents that do not impair a second metallic film**. Claims 15-19 of US 6,974,764 recite a method wherein “the exposed part of the second metal layer and the underlying part of the first metal layer” are both removed by “applying a wet etch chemistry that includes a chelating agent . . .” (col. 10, lines 18-22). Thus, claims 13, 14 and 16-31 of the present invention are patentably distinct.

Claims 13, 14 and 16-31 rejection for nonstatutory obviousness-type double patenting

Claims 13, 14 and 16-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending US Application No. 10/704,498. The applicants herein amend independent claims 13 and 18 (on which claims 14, 16-17 and 19-25 depend) and respectfully request reconsideration of claims 13, 14 and 16-31 in view of the amendments and the following arguments.

As discussed above, the applicants teach a method of **removing a portion of a first metallic film by using chelating agents that do not impair a second metallic film**. Claims 1-15 of US 6,974,764 do not recite a second metallic layer. Claims 16-20 of US 6,974,764 recite a method wherein “the exposed part of the second metal layer and the underlying part of the first metal layer” are both removed by applying “a wet chemistry that comprises . . . a chelating agent . . .” (page 4, claim 16). Thus, claims 13, 14 and 16-31 of the present invention are patentably distinct.

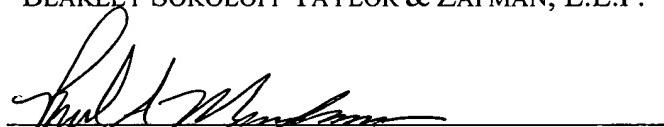
CONCLUSION

The applicants submit that they have overcome the Examiner's rejections of the claims and that they have the right to claim the invention as set forth in the listed claims. The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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Date

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